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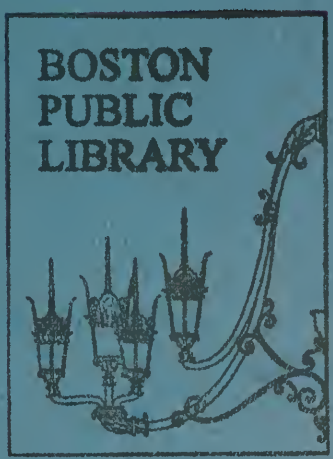
REPORT TO GOVERNOR SARGENT

ON IMMEDIATE ACTION OPPORTUNITIES



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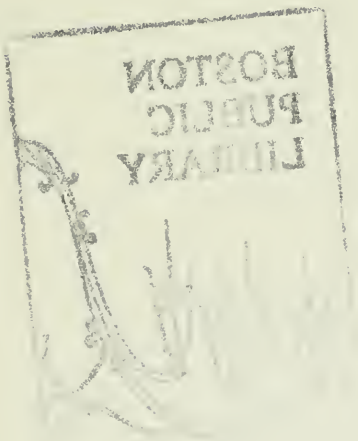
REPORT TO GOVERNOR SARGENT

ON IMMEDIATE ACTION OPPORTUNITIES

Mass. GOVERNOR'S TASK FORCE ON TRANSPORTATION

January, 1970

Part I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GOVERNOR'S TASK FORCE ON TRANSPORTATION

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REPORT TO GOVERNOR SARGENT

ON IMMEDIATE ACTION OPPORTUNITIES

GOVERNOR'S TASK FORCE ON TRANSPORTATION

1. This Report--Purposes and Limits

In announcing the appointment of this Task Force last October, you stated that our mandate would be "as simple as it is sweeping--to re-examine our transportation planning, goals and direction." This memorandum, which constitutes Part I of our report, deals with only a portion of that mandate--our conclusions about the current highway program as it affects the Boston Metropolitan Area, and immediate action opportunities which follow therefrom.

We expect to submit Part II of our report in April. It will deal with a number of long-range issues, including the structure and financing of the forthcoming Executive Office of Transportation, directions for public transportation, and participation by localities and citizens in transportation planning and decision-making.

We are submitting Part I at this time because we believe that some immediate actions are essential if your objective of obtaining "balanced transportation" is not to be substantially compromised by short-run events with damaging long-range consequences.

This report is not intended to be exhaustive; instead it offers our general conclusions, with outstanding examples of the most important problems, and recommendations for immediate action.

This report is unanimous in all specific recommendations. One member has entered a concurring opinion, which is attached at the end.

2. General Finding

In your Urban America speech last May, as you announced that you would appoint this Task Force, you indicated that you would ask it to apprise you of whether the current highway plans take adequate account of:

1. The job needs of residents affected;

2. The housing crisis of the metropolitan area;

3. The effect on community life;

4. The balance of transportation needs; and

5. The effect upon environment.

We find that current highway plans take almost no account at all of these considerations.

In making this finding, we do not find particular fault with the Department of Public Works. We believe that similar conditions prevail throughout the country. We have noted, moreover, that the DPW's property acquisition and relocation policies appear to be among the nation's most humane.

The inadequacies of the plans are products, primarily, of federal law and standard highway engineering practice. They are extremely serious, nonetheless. For example:

--transit investment and service development have been grossly neglected as a result of federal emphasis on highway construction to support the private automobile. *

--there is virtually no consideration of the relationship between expressway, local street, and parking capacity.

--the plans are extremely weak with respect to the integration of highway and transit facilities into a single, unified transportation system.

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* Note: By "transit" we mean all modes of transportation open to the public and not owned by individuals. This definition includes taxis and buses, as well as rail transit.

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--there is no provision for replacement of housing stock demolished to make way for the highways (this is a separate consideration from relocation payments to people and businesses required to move.)

--there is no provision to replace open space taken for the highways.

--there is a total absence of studies to indicate the impact of particular highway projects on noise, air, and sight pollution.

3. An Inadequate Planning and Decision Process

The body politic has largely abdicated its planning responsibility to a small number of powerful operating agencies, each with its own specialized mission and hence its own limited viewpoint. These agencies have substituted their legitimate but limited operational planning for overall transportation planning, with the exception of occasional "ad hoc" joint planning exercises dominated by the "expert" operational thinking of one or more of these agencies.

It would have been surprising if an integrated transportation system had developed out of such an organizational context. But times have changed. Understandable as the present situation is, we can no longer tolerate a decision-making process characterized by fragmented responsibility, agency secrecy, citizen distrust, lack of community participation, inter-agency rivalry, and the exercise of political leadership only in exceptional "crisis" situations.

4. Highway Considerations

We judge that the plans are inadequate even in terms of road transportation criteria. For example:

First, the core employment forecasts--upon which the estimates of additional highway need are built--were arrived at by political negotiation rather than economic analysis. Different, perhaps more realistic, forecasts would produce fundamentally different estimates of highway need. At very

least, explicit recognition of the uncertainty of these forecasts is called for, with provision for continuing review of investment programs as new trends and developments appear. The current planning process does not provide for such reviews.

Second, the plans ignore fundamental issues of staging. They are focused entirely on 1990. They do not consider the impacts of making certain investments before others--e.g., highways before transit extensions along given corridors, radials before belt highways, expressways before local street and parking improvements. Such staging decisions often have vital effects on long-term travel and land-use patterns, however. In addition, they are of critical importance during the years between completion of one project and completion of those related to it. It is essential, in our judgment, that such decisions be made with greater care and more explicit justification than they have been to date.

In general, we find that the expressway plan's most critical weakness is its relationship to the local street and parking system. The entire viability of the expressway plan for the regional core depends upon certain key assumptions about local street capacity in the vicinity of interchanges, yet some of these assumptions appear quite weak. For example, the South End Bypass is scheduled to absorb half the peak hour traffic coming off the proposed Southwest Expressway. The Bypass is a local project, which the City of Boston does not expect to be implemented. All observers, including those at the DPW, agree that the Expressway segment cannot work without the Bypass.

In the absence of adequate local street and parking capacity, an expansion of Boston's expressway system will not solve the "congestion" problem; it will simply move bottlenecks from one place to another, and perhaps even worsen them by attracting more cars to the highways.

We therefore believe that a particular highway project should not be backed at this point unless it can be justified on its own merits; if its viability depends upon other segments and other facilities that are very doubtful, caution is in order. A balanced transportation program for the region will undoubtedly require more roads, some of them expressways. The current program, however, relies excessively on freeways and threatens to lock the region into a more

difficult predicament than it faces at present.

Even in terms of expressways themselves, inadequate attention has been paid to issues of scale--how many lanes should they have? We have been told by the DPW that expressways should be built to the "maximum" width--which means four lanes and two breakdown lanes in each direction. More than this are considered unsafe; but fewer are hardly considered at all.

Expressways on the vast scale currently planned will aggravate the discontinuities that already exist in our road network. Meshing the line-haul capacity with constraints of local circulation and parking is absolutely essential. Unfortunately, no agency is currently charged with responsibility for thinking about the entire street-highway system. Thus, each tends to ignore these problems of road system integration.

Beyond doubt, the automobile will remain our dominant mode of travel in the metropolitan region. This does not automatically mean, however, that additional 8-lane expressways, designed to carry vehicles 60 miles per hour, are optimal or even acceptable in downtown Boston.

The Interstate System was planned with rural understandings; its applicability to urban areas like Boston is extremely limited. We believe that serious consideration should be given to highway options not in present plans. These include the following: grade separation of arterial street intersections; upgrading some existing arterials into limited access "mini-expressways;" parking facilities; improved management of existing facilities by such means as computerized control of access to maintain free traffic flow and permit priority access to buses.

5. The 10-cent Dollar

The Interstate Highways within Route 128 will be built as planned, it appears, not because they are the best public investment--or even the best highway investment--for the money. Rather, they will be built as a result of local priorities which have been badly skewed by the availability of what appear to be, from the state standpoint, "10-cent dollars." Of every dollar for the Interstate

Highway System, 90 cents is provided by the Federal Government. No similar percentage is provided for local street improvements or for transit.

This rigidity of federal aid policy confronts you, along with other state and local officials throughout the country, with highly unpalatable choices.

We urge you to move vigorously to open up your options. Your objectives should include greater flexibility to use federal highway aid for alternative highway and local street projects, for transit improvements, and for replacement housing. At the state level, we urge that you seek a constitutional amendment permitting the use of highway revenues for transit and replacement housing purposes.

6. Recommendations

More specifically, we recommend that you take the following actions:

(1) UNDERTAKE A NEW, MORE COMPREHENSIVE REVIEW OF THE REGIONAL CORE'S TRANSPORTATION NEEDS.

(2) PENDING THE FIRST RESULTS OF SUCH A REVIEW, SUSPEND ALL CONSTRUCTION, ACQUISITION, AND DEMOLITION ON THE SOUTHWEST EXPRESSWAY, INNER BELT, AND ROUTE 2 EXTENSION THROUGH CAMBRIDGE.

(3) DISAPPROVE THE "TASK B" INNER BELT CONTRACT.

(4) MOVE AHEAD WITH THE PENDING I-93 AND LEVERETT CIRCLE BRIDGE PROJECTS.

(5) TAKE THE LEAD IN FORGING A NATIONAL ALLIANCE OF OFFICIALS FROM THE MAJOR INDUSTRIAL STATES TO SECURE GREATER FLEXIBILITY IN THE FEDERAL HIGHWAY PROGRAM.

(6) SUPPORT THE CREATION OF A STATE TRANSPORTATION TRUST FUND.

Details of these recommendations follow.

(1) UNDERTAKE A NEW, MORE COMPREHENSIVE REVIEW OF THE REGIONAL CORE'S TRANSPORTATION NEEDS.

We urge you to initiate a new process, and a new era, in Boston transportation planning--one in which a genuine integration of social, environmental, economic, and transportation criteria will be sought; one in which assumptions, options, and conclusions will be surfaced for public discussion, debate, and decision.

This process should be led from your office, pending establishment of the Executive Office of Transportation and Construction. The initial review should be geared to produce concrete recommendations within twelve months. The comprehensive planning process should be viewed as an incremental and continuing one, however, charged with adapting transportation programs to changing needs, resources, and social values as they emerge.

The initial planning review, in our judgment, should focus on a broad range of transportation options, including:

(a) development options for the Southwest corridor;

(b) development options for radial transportation through Cambridge, including the proposed Route 2 highway extension and Harvard-Alewife transit extension;

(c) alternatives of location and scale for the Inner Belt through Cambridge, including the so-called "Western Corridor" that has been proposed by the City of Cambridge;

(d) various proposed means of improving integration of the private automobile and public transportation systems, with particular attention to interface points;

(e) the full range of expressway, "mini-expressway," arterial, local street, and parking investment options within Route 128;

(f) the full range of public transportation options, including express buses, rail transit, smaller vehicles, and "people movers;"

(g) facility management investment options within Route 128.

The proposed review should consider much more than traffic assignments; it should focus as well on social, environmental, employment, and pollution impacts; and it should consider the construction costs of the alternatives considered.

(2) PENDING THE FIRST RESULTS OF SUCH A REVIEW, SUSPEND ALL CONSTRUCTION, ACQUISITION, AND DEMOLITION ON THE SOUTHWEST EXPRESSWAY, INNER BELT, AND ROUTE 2 EXTENSION THROUGH CAMBRIDGE.

The Southwest Expressway, the Inner Belt, and the Route 2 extension through Cambridge, if completed according to present plans, would represent investments on the order of $600 to $700 million. As an interrelated set of facilities, they would have an enormous impact both on the core and upon the communities through which they would pass.

We recommend that you suspend or postpone all construction, acquisition, and demolition related to these expressways until the comprehensive planning review recommended above has a chance to assess the overall costs and benefits associated with them.

In this regard, we are impressed with the fact that of the six cities or towns through which these roads would pass, five are now officially opposed to their construction--Boston, Canton, Cambridge, Milton, and Somerville. The sixth, Brookline, has not taken a firm position one way or the other, although it officially resolved last March to withhold its approval of the Inner Belt unless the Belt was tunnelled under the Charles River. Brookline, it should be noted, would be affected only peripherally.

(a) The Southwest Corridor. We have no doubt that the Southwest corridor should be used for transportation. It seems probable that at least part of it should be used for a highway. But exactly how that corridor should best be used both by those who would travel over it and by those who live or work near it are questions which have not yet been adequately answered. Alternatives worth serious analysis include:

--the existing proposal.

--the existing proposal with a highway of 4 or 6 lanes, rather than 8.

--reliance on highway investment south of Forest Hills, with metered access and preferential access for buses, interfacing with rail transit from Forest Hills to the core.

--no highways, but use of the existing railroad tracks for a transit extension.

--busways all the way into the South Station transportation terminal.

(b) Route 2 Extension Through Cambridge. The complicated history of this proposal includes opposition to the expressway by the City of Cambridge and unresolved controversy about whether, where, and how to build a transit extension to the end of existing Route 2 at Alewife Brook. We note that the MacIntyre Commission has recently urged that the highway be cancelled in favor of fast extension of transit service to Alewife Brook. We do not necessarily endorse this proposal, but it is obviously worth serious consideration.

(c) The Inner Belt from the Southeast Expressway to the Somerville Interchange. The proper scale and location of this facility largely depend upon what is decided about the Southwest Expressway and the Route 2 extension. Without these radials, there is probably little justification for an 8-lane Belt at the current proposed location. Even if these radials are built, serious consideration should be given to various routes and scales for the Inner Belt through Cambridge. The route alternatives should include Brookline-Elm; Portland-Albany; and the "Western Corridor" alignment currently proposed by Cambridge. The scale alternatives should include a 4 or 6 lane expressway, the halves of which might be several blocks apart.

(d) Acquisition and Demolition. Where acquisition of property is taking place in these corridors, it should cease except in "hardship" cases on request of the owner. Demolition of habitable housing should also cease. Vacant housing found unfit for human habitation should be demolished forthwith. The DPW should be directed to work with responsible local agencies (e.g., the Boston Housing Authority) in making such determinations, as well as in arranging for the interim management of the structures retained in use. The agencies in turn should be encouraged to involve community groups. Such housing might be managed in a given locality by the DPW itself (as at present), the local housing authority, the local renewal authority, or a philanthropic housing association.

(3) DISAPPROVE THE "TASK B" INNER BELT CONTRACT.

Implicit in recommendations (1) and (2) above is the conclusion that the focus of Task B of the Inner Belt restudy is seriously misplaced.

Task B has as its objective the designing and joint development of approximately 6 miles of the Inner Belt, of which only about 3 miles will be subject to intensive design. These represent only one link--though a critical one--in the larger system.

Before going ahead with that link, there should be a full review of the need for the larger system and for that link, compared with other investment alternatives. Task B is not scheduled to provide such a review. It does not even include consideration of the most serious alternative already proposed: the Cambridge "Western Corridor" plan. Yet it is scheduled to cost $5.4 million.

In our view, such a mammoth expenditure on such a narrow study would be totally unjustified at this time. As noted above, there is a critical need for a more wide-ranging review with a more broadly-based process. We believe such a review could be done for about two-thirds the amount proposed for Task B.

We recommend therefore that the Task B contract not be approved, and that you take steps to utilize roughly $3.5 million of the federal and state resources which would have been devoted to Task B for the comprehensive planning review recommended above.

(4) MOVE AHEAD WITH THE PENDING I-93 AND LEVERETT CIRCLE BRIDGE PROJECTS.

We believe that it is important to move ahead with certain badly needed highway projects that seem justified on their own merits and do not foreclose future options. In particular, the connection between Route I-93 North and the Central Artery, as well as the Leverett Circle Bridge Project, should proceed as fast as possible.

We have not had a chance to examine in detail Route I-95 North and the Winthrop connector, because these have seemed to pose less immediate decisions for your consideration.

We are not recommending a "moratorium" on highway construction within Route 128. It seems to us that such a moratorium would be too sweeping. The particular circumstances of each controversial highway segment differ, and the segments on which construction contracts have already been let do not appear to be controversial.

(5) TAKE THE LEAD IN FORGING A NATIONAL ALLIANCE OF OFFICIALS FROM THE MAJOR INDUSTRIAL STATES TO SECURE GREATER FLEXIBILITY IN THE FEDERAL HIGHWAY PROGRAM.

The Highway Act of 1968 broke new ground with respect to relocation policy, the TOPICS program ("Traffic Operations Program to Improve Capacity and Safety"), and fringe parking. We believe that a real chance exists to make even more substantial advances in the 1970 Highway Act--advances that would give the governors and mayors of major metropolitan areas more palatable political options as well as permit more desirable investment strategies.

We recommend that you undertake the forging of an alliance of state and local officials from the major industrial states to build greater state-local option into the highway program in 1970. In our judgment, the most critical new provisions that should be sought are the following:

(a) Authority to substitute arterial street improvements for new expressway construction in densely settled areas, as a way of completing the Interstate program. These improvements might include the upgrading of some arterial streets into junior expressways. The federal share might be two-thirds rather than 90 percent. The Act might provide for this authority to be exercised by the Secretary of Transportation, acting on the request of a state governor.

(b) A dramatic increase in the availability of funds for the TOPICS and fringe parking programs.

(c) Authority to use highway funds for the replacement of low and moderate income housing taken for highway projects. In this connection, we note Congress in 1969 adopted such a policy with respect to urban renewal projects.

(d) More ambitiously, the time may be ripe to press for a federal transportation trust fund, from which funds could be allocated flexibly among various transportation modes in accord with the differing needs of each area. As with (a) above, the Act might provide for this authority to be exercised by the Secretary of Transportation, acting on the request of a state governor.

(6) SUPPORT THE CREATION OF A STATE TRANSPORTATION TRUST FUND.

We believe that integrated transportation planning and decision-making will be furthered by the creation of an integrated state transportation fund, resources of which can be allocated flexibly for highway and transit purposes according to the needs and planning objectives of each area.

In our later report we will elaborate the possibilities for a state transportation trust fund, in terms of both resources and uses. We are making the general suggestion now, however, because we believe you should initiate action immediately to put the state tax on automobile fuel into such a trust fund.

Currently state fuel taxes are earmarked by the state constitution for highway purposes only. A constitutional amendment requires passage by two successive legislatures, with an election in between, followed by a public referendum. If that process begins in the current session, it could be completed by 1972. If it waits until next year, it could not be completed until 1974.

The existence of a state transportation trust fund by 1972 would put the Commonwealth in the best possible posture to take advantage of a federal transportation trust fund if one comes into being by that year.

CONCLUSION:

We have deemed it advisable to give you this report now because we believe that immediate action is necessary in order to preserve the possibility of achieving an integrated and balanced transportation system for the Boston metropolitan area.

We are at a vital crossroads. Inaction at this point could commit the Commonwealth to enormous investments whose full implications are little understood, but which would clearly reverberate for many generations.

Effective long-term planning is that which focuses on the future implications of current decisions, and which seeks to avoid the premature foreclosure of future options. We have sought to initiate such a planning process. Hopefully, it will become routine in the years to come.

Respectfully submitted,

ALAN A. ALTSHULER, Chairman

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FRANKLIN A. LINDSAY

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LEWIS M. SCHNEIDER

ROBERT B. SHAPIRO

January, 1970

CONCURRING STATEMENT BY CHARLES T. GRIGSBY

This state's transportation plans have effectively and unjustly ignored the mobility needs of hundreds of thousands of its residents. Federal and state transportation planning continues to boost the personal auto as the primary means of transportation while many Americans are either too poor, or too old, or too young to have an automobile. These same citizens do not, in fact, receive any of the benefit from the millions of dollars spent by the government, and are even forced to pay part of the cost of those who do drive, in many ways other than dollars. The net result is a gross imbalance in the availability of fast, convenient transportation to different groups of people in the greater Boston area.

If Massachusetts intends to rethink its transportation plans, then one of the first priorities must be to find ways to end the economic discrimination in transportation against our auto-less citizens. Massachusetts, with her vast human resources, should take the lead in recognizing transportation as a public right for all citizens, in the same way that public education and adequate medical care have been so recognized. A central part, therefore, of any new transportation restudy must be the search for those pieces of existing service, funding, and technology which can be combined to effectively increase the mobility of our non-driving citizens.

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REPORT TO GOVERNOR SARGENT, PART II

GOVERNOR'S TASK FORCE ON TRANSPORTATION

June, 1970

GOVERNOR'S TASK FORCE ON TRANSPORTATION

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SUMMARY OF RECOMMENDATIONS

The major recommendations of this report are found in the following four sections:

The Transportation Decision Process (IV)

The Regional Transit System (V)

Intercity Transportation (VI)

Automobile Pollution (VII)

They can be summarized as follows:

* * *

The Transportation Decision Process

The transportation decision process should provide for both decisiveness and widespread participation. The need is for an open process in which local governments and interested private organizations can make informed contributions, and can secure a genuine sense that they are being heard, without sapping the state's ultimate capacity to act.

To move toward this objective, we have made three broad recommendations, and suggested means for their implementation, as follows:

1. There should be a strong Executive Office of Transportation and Construction, adequately staffed, with primary responsibility for strategic planning and decision lodged in the Secretary.

IMPLEMENTATION:

a. Extend jurisdiction of the Executive Office beyond those designated in the existing Cabinet Act to include: powers over the highway functions of the Metropolitan District Commission; authority to make significant inputs to regulatory proceedings before the Department of Public Utilities; and authority to develop programs to integrate local parking facilities with state transportation policy.

b. Abolish the Boards of Commissioners of the Department of Public Works and the Massachusetts Aeronautics Commission and the Board of Directors of the MBTA; place chief executive authority within each agency in the hands of a full-time administrator appointed by the Governor and responsible to the Secretary.

c. With respect to the Port Authority and the Turnpike Authority, empower the Secretary or his designee to sit on each board, ex officio, with full voting rights, and forbid the Authorities to undertake major new activities without the Secretary's approval.

d. Retain the Advisory Board of the MBTA with power to veto operating and--we would add--capital budgets so long as the MBTA can impose property tax assessments on the localities.

e. Organize the Executive Office under two Deputy Secretaries, one for the Boston metropolitan area and one for the rest of the state.

f. Give the Secretary primary responsibility for strategic planning and give the operating agencies primary responsibility for operational planning, with a large amount of interaction between the two levels.

g. Create a state Transportation Trust Fund, resources of which should be available for capital investment and capital maintenance, but not for operating subsidies.

h. Give other state agencies (especially the Executive Offices of Communities and Development, Environmental Affairs, Consumer Affairs, and Public Safety) an opportunity to participate in the development of and comment upon the official versions of major transportation proposals.

2. Countervailing planning capabilities should be spread throughout the interested parts of the political system--including the modal transportation agencies, the Metropolitan Area Planning Council and other regional planning bodies, local planning departments, and non-government groups--to permit widespread informed participation in the strategic decision process.

IMPLEMENTATION:

a. Improve local planning capabilities by providing technical assistance through regional planning bodies, the Executive Office of Communities and Development, and the Secretary.

b. Provide easy and timely access to official data through a state "Freedom of Information Act" (or an Executive Order to the same effect), the presentation of data in usable form, and an open Transportation Library where groups and individuals can consult key documents.

c. Create widely varied forums for constructive participation in the planning process, including a variety of working committees to study controversial corridors in the forthcoming comprehensive planning review.

3. Fair and formal procedures should be established to guarantee that all significant viewpoints receive a serious hearing.

IMPLEMENTATION:

a. Require that the Executive Office support each proposal for a new transportation facility with a solidly based analysis of alternatives and the consequences of each.

b. Provide for an open public hearing on this analysis, conducted under the auspices of a quasi-independent review board, which would report its findings to the Secretary of Transportation.

* * *

The Regional Transit System

With respect to the Regional Transit System, our recommendations fall into five areas. The first three of these require specific decisions now. The last two raise issues of priority, emphasis, and direction, and require further elaboration and consideration.

1. The MBTA's Pending Request for $300 Million Additional Bonding Authority.

The pending legislation authorizing $300 million in new transit bonds should be approved, but subject to the following conditions:

a. MBTA submission to the Governor within 12 months of a concrete program, to which labor has agreed, for substantially improving productivity and efficiency over a 5-10 year transitional period, and

b. acceptance by the Governor of said plan as adequate.

c. either of the following:

--that interest and amortization on the bonds be paid from a state funding source (e.g., a Transportation Trust Fund), or

--that, if the bonds are to be serviced from local tax revenues, each flotation require approval by the MBTA Advisory Board.

2. The Deficit.

The general operating deficit should be substantially reduced, perhaps even eliminated, over the next ten years--although specific subsidies may be necessary to meet the following objectives:

a. capital expansion,

b. capital modernization to achieve improved efficiency,

c. research, development, and demonstration of new technologies and service concepts, and

d. serving the high priority needs of particularly immobile groups: e.g., the elderly, the disabled, and the very poor.

3. Improved Efficiency.

There is a critical need for genuine commitment by all affected parties to the objective of improving MBTA efficiency. This should be demonstrated by the following actions:

a. the joint labor-management 5-10 year productivity and efficiency plan mentioned above,

b. narrowing the range of issues subject to arbitration,

c. top priority to new maintenance facilities,

d. greater efforts to recruit young, innovative, and vigorous middle managers.

4. Reallocation of MBTA Responsibilities.

The following innovations in the management of the regional transit system should be considered:

a. Spinning off to local communities, possibly grouped into subregions, responsibility for local circulation and feeder services outside the core, retaining the main line-haul operations as the central responsibility of the MBTA.

b. Contracting out more of the functions now performed by the MBTA "in-house."

5. Planning Guidelines.

The following suggestions with respect to priority and direction should be considered:

a. an integrated policy of increased long-distance commuter fares and downtown parking charges.

b. higher priority to road as opposed to rail transit in planning major new investments.

c. greater attention to the development of flexible collector-feeder and distributor systems.

* * *

Intercity Transportation

The Task Force's resources have permitted no more than a highly general consideration of the problems of intercity transportation, with no detailed findings and recommendations. There are a number of existing detailed studies of this problem; what is needed now is a sorting out of the options, with the full range of costs and benefits made clear. Within the next two to three years, critical intercity transportation investment choices will have to be made. These decisions will involve assigning priorities among a number of existing and emergent modes--conventional air, V/STOL, and high speed ground transportation--as well as choices among investment options within modes (expansion of Logan versus a second jetport, for example). Such decisions should be made with three main considerations in mind:

1. planning and decision making about future investment should occur within a truly multi-modal framework. The need for jetport expansion, for instance, should be assessed in the context of the full range of developing technological options, including high speed ground and V/STOL alternatives.

2. the planning process should be multi-value in orientation, with full consideration to non-transportation criteria that may be relevant to choices among options. The adverse impacts of airport facilities on the quality of life in nearby neighborhoods, for example, provide a powerful argument in favor of a greater emphasis on high speed ground transportation than has been evident to date.

3. the planning process should be open to inputs from the incredibly diverse range of interested parties, from particular neighborhoods to other states and the federal government. While the process of planning for intercity transportation cannot be as fully participatory as that of planning for intra-metropolitan transportation, it is nonetheless essential to ascertain and accord heavy weight to typical local and neighborhood concerns by giving representatives of such concerns full opportunity to present their views. Once the major choices have been made, moreover, and the key issues are of detailed implementation, we believe that the process should come more closely to approximate (and be integrated with) that which we have recommended for intra-metropolitan transportation planning.

We deem it vital for the Governor to develop a policy position and seek vigorously to secure its implementation. As the first step in developing such a position, we urge a detailed review of the major options, conducted by key advisors to the Governor. Pending the completion of such a review--hopefully, like this one, to be completed within six to eight months--we strongly recommend that every effort be made to avoid large new commitments that would have the effect of foreclosing important future options.

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Automobile Pollution

Our attention has been drawn to the problem of automobile pollution because of its risks to human health. Given constraints of time and resources, the Task Force has made only a very general review of those risks. We have concluded that while a good deal is known about the harmful effects, there are tremendous gaps in available knowledge. We do know enough to be intensely concerned about what we do not know. Neither panic, complacency, nor a rush to institute operational programs strike us as the proper responses. The highest priority need, we judge, is for a vigorous program of knowledge-seeking, aimed at determining:

--the cumulative effects of pollutants on human health

--what the future holds with respect to the emergence of feasible technological alternatives to the internal combustion engine

--local air quality characteristics

We are concerned about rushing into operational programs, because existing emission control technologies tend to confront us with trade-offs among pollutants. Substitution of certain chemicals for lead, for example, may produce more serious consequences than those caused by lead. Similarly, reductions in the emission of carbon monoxide and hydrocarbons may be accompanied by increases in the emission of oxides of nitrogen, which some people believe may be more harmful. New technologies may be developed to deal separately with the various pollutants, but for the present we seem to be confronted with unsatisfactory trade-offs. The risk is that piece-meal efforts based upon existing technology may accomplish nothing but a switch from one pollutant to another at very high costs and with serious long-run biological consequences, and may lead to a false sense of security, public apathy, and eventual bitter disillusionment.

The only certain way to reduce automobile pollution is to reduce the usage of automobiles, so long as automobiles rely on internal combustion engines. To the extent that there are viable choices between public transportation and private automobiles in densely built-up areas where pollution levels are typically highest, pollution control should be considered an important factor on the side of public transportation.

Pollution control should be part of a strong and integrated state environmental planning process, which should be constituted in the Executive Office of Environmental Affairs to provide effective and continuous interaction with the transportation planning process.

I. Introduction.

Seven months ago you gave this Task Force a mandate "as simple as it is sweeping--to reexamine our transportation planning, goals, and direction". This is the second part of our two-part report in response to that charge. Part I, submitted to you in January, dealt with specific highway plans for the Boston region. Part II, which follows, deals with three topics:

--the orientation of transportation planning

--the state's transportation decision process

--the Boston region's public transportation system

The Boston region is at a crossroads in transportation policy. Critical investment choices have to be made in the near future. Dissatisfaction with the existing transportation decision process, and with its products, is rife. And there is a widespread willingness to consider fundamental changes in the organization and philosophy of transportation decision making.

This willingness to consider fundamental change has been shaped by two major crises: on the one hand, the fiscal crisis of public transportation; on the other, growing resistance to the deleterious by-products of private transportation--most notably, those of the new urban expressways that have been planned to accommodate the private car.

Both crises have reached a new peak of intensity at a time when fundamental reorganization of the state government is already under way. In April 1971, nearly all state agencies are to be brought within nine Executive Offices, all headed by gubernatorial appointees who will collectively constitute a Governor's Cabinet. One of these new Offices will be the Executive Office of Transportation and Construction. Its Secretary will have an opportunity for multi-modal policy leadership that no state official has ever had previously.

The focus of this report is on how that opportunity can most effectively be exploited. If it is exploited effectively, we believe, the current transportation crises will be viewed in future years as having laid the groundwork for an era of great and genuine transportation progress.

Once again, we are unanimous in our recommendations.

II. Central Themes.

We wish to highlight four general recommendations drawn from our two reports. Together, they constitute the central thrust of our thinking as we conclude this review of the Boston region's transportation problems.

1. Decisiveness plus Participation.

There is a need to combine strong central authority--required for decisiveness--with openness and widespread participation in the transportation decision process. We look to the new Secretary of Transportation and Construction to provide the strong central leadership. We believe that, without diluting his authority, he can structure the planning process so as to ensure that all viewpoints are truly and visibly accorded serious consideration.

2. Multi-modal Planning and Financing.

Transportation planning and financing should be multi-modal. It is vital that transportation facilities and services be welded into a single, integrated system. Investment decisions should be based on overall system needs, recognizing that this may lead to cross-subsidization among modes.

3. Multi-value Planning.

Transportation planning should be multi-value in its orientation. That is, it should give as much consideration to the by-products of transportation investment decisions as to their intended transportation effects. These by-products will normally include the following:

- -- effect on the supply of low and moderate income housing;
- -- effect on the supply of recreational open space;
- -- air and noise pollution impacts;
- -- land-use development impacts;
- -- effect on such social values as racial integration and neighborhood stability;
- -- local tax base and employment impacts;
- -- effect on the visual attractiveness and overall congeniality and livability of the urban environment;
- -- effect on vehicular loadings of surface streets and their surroundings.

We do not place great weight on assigning dollar values to all identifiable costs and benefits. We rather urge: (a) that the likely consequences of each investment option be described as precisely as possible, whether or not they can be quantified, (b) that sensitivity analyses* be conducted to help evaluate the significance of risks and uncertainties, and (c) that from the start, facility designers be charged with achieving an optimal reconciliation of the main values identified. We deplore the tradition of designing initially with a single program's objectives in mind, and then seeking to accommodate other important societal values by "tinkering" at the margins.

4. Transit Investment Contingent Upon Improved Productivity.

We believe that massive new transit investment is critically needed. We judge that improved labor productivity in the MBTA system is an equally critical need, however. Unless the MBTA moves rapidly to earn credibility as an efficient user of public resources, we expect the taxpayer revolt against it to spread like brushfire--thus imperilling your objective of increased emphasis on public transportation in the region. Thus, we urge that new bonding authority for the MBTA be made contingent upon the conclusion of a meaningful productivity agreement by the Authority's labor and management.

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* Analyses conducted to show how sensitive particular conclusions are to varying magnitudes of error in input data.

III. The Orientation of Planning.

As noted in Section II, we believe that transportation planning should be multi-modal, multi-value, and open to widespread participation. In addition, we would argue:

--that it should be incremental: i.e., tied to short-term investment options, favoring investments that can justify themselves within a relatively short period, oriented over the longer term as much toward keeping future options open as toward responding now to problematic forecasts of future need;

--that it should be innovative and free-wheeling: i.e., oriented toward exploiting new service concepts and technological opportunities, capable of adapting quickly to new consumer preferences and of cutting across traditional modal boundaries;

--that it should inform rather than supersede the political process: i.e., that it should develop and dispassionately analyze a variety of alternative program packages in each decision situation, so that responsible officials have real choices to make, and can make them with the fullest possible knowledge of each option's impact on all segments of the metropolitan population.

Long-term planning, we would emphasize, should be focused on the future implications of decisions that have to be made soon. It should be acutely alert to the increasing uncertainty of longer and longer range forecasts. Its basic assumptions should be subject to frequent review and revision. It should pay great attention to the equity of the distribution of costs and benefits among population groups, not simply on individual projects but cumulatively as well. It should elaborate the importance of staging options, particularly the implications of building highway before transit facilities on a given corridor or vice-versa. It should be sensitive to the varying mixes of transportation facilities that are appropriate for varying land-use patterns. And most important, it should recognize the need in a democratic society to secure broad public consent for major decisions.

IV. The Transportation Decision Process.

On April 30, 1971--if not before--the state's new Executive Office of Transportation and Construction will come into being. Our analysis of the transportation decision process has focused on the role of that Office, and of the Secretary who shall head it.

We believe that the transportation decision process should provide for both decisiveness and widespread participation. The former should be achieved by concentrating great authority in the Secretary of Transportation and Construction. The latter should infuse the entire process by which options are conceived and analyzed.

The Secretary should concern himself primarily with the making of "strategic" decisions, those which shape the overall thrust of transportation policy. Most strategic decisions will involve one or more of the following:

-- allocating resources--in particular, developing major investment programs,

-- shaping the administrative process (organization, value orientation, personnel, procedures),

-- establishing the character of relations between the state's transportation agencies and other relevant institutions (federal, state, local, neighborhood) of the government and larger society.

At present, fragmentation of responsibility for transportation planning and decision is the rule. A small number of powerful operating agencies, each with a specialized mission, have substituted narrow modal planning for comprehensive transportation planning. Thus, future jetport investment is planned with little attention to V/STOL and high speed ground alternatives. Expressway investment is planned with little regard for local street and parking capacity in the vicinity of interchanges, for possible transit or traffic operations alternatives, or for effects on such other problems as the shortage of low income housing. Rail transit extensions are planned with inadequate attention to feeder needs and possible express bus alternatives.

We find also that the transportation planning process has been conducted with needless secretiveness and resistance to citizen involvement. Public hearings, conducted only to meet minimum legal requirements, have typically focused on decisions to which the agencies were already committed. Citizen groups and many local officials have concluded, with some justification, that their only means of effective influence were public protest and obstruction. Top political leaders have generally become involved only at the climax of crises, when projects were just about to get under way, at great expense to all parties.

The need is for an open process in which local governments and interested private organizations can make informed contributions, and can secure a genuine sense that they are being heard, without sapping the state's ultimate capacity to act.

The basic elements of the transportation decision process that we propose are three:

1. A strong Executive Office of Transportation and Construction, adequately staffed, with primary responsibility for strategic planning and decision lodged in the Secretary.

2. Countervailing planning capabilities spread throughout the interested parts of the political system--including the modal transportation agencies, the appropriate regional planning agency,* local planning departments, and non-government groups--to permit widespread informed participation in the strategic decision process.

3. Fair and formal procedures designed to guarantee that all significant viewpoints receive a serious hearing.

We view these components of the decision process as complementary. No one can be omitted without seriously impairing the entire process. In the absence of countervailing planning capabilities, the availability of information would have little significance. In the absence of open procedures, administered with the aim of producing meaningful dialogue in an atmosphere of trust, countervailing capabilities might simply produce an intensification of conflict. In the absence of a strong Secretary, the process would be highly susceptible to paralysis.

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* For the Boston region, this would be the Metropolitan Area Planning Council. There are a number of other regional planning agencies serving other parts of the state.

We note explicitly, and with regret, that our recommendations assume the continued absence of strong metropolitan government. If such a government existed--with a strong executive and a representative, coherently organized, legislature--we might have urged that it be granted a veto over transportation projects in the area of its jurisdiction. We have judged that according such a veto to any of the existing regional boards or councils, however, would result in stalemate and stagnation.

Let us elaborate on our three central recommendations in somewhat greater detail.

1. Strong Secretary of Transportation and Construction.

A. Scope of Jurisdiction.

The following agencies are currently scheduled to be within the Executive Office of Transportation and Construction:

--Department of Public Works (DPW)

--Massachusetts Bay Transportation Authority (MBTA)

--Massachusetts Port Authority (MPA)

--Massachusetts Turnpike Authority (MTA)

--Massachusetts Aeronautics Commission (MAC)

To encourage overall transportation system integration, we recommend that three additional areas be brought within the scope of the Executive Office:

(i) The highway functions of the Metropolitan District Commission (MDC) should be transferred to the Executive Office (possibly to the Department of Public Works).

(ii) The Executive Office should play a significant role in transportation rule-making functions presently performed by the Department of Public Utilities. These primarily concern the regulation of routes and rates of public carriers outside the MBTA area. For reasons of fairness and objectivity, the integrity and insulation of these quasi-judicial rule-making functions must, we believe, be preserved, but the Executive Office of Transportation--like the federal Department of Transportation in federal rule-making--should have the authority to intervene in and on occasion to initiate particular cases so that public policy is adequately represented. In addition, the Executive Office should have authority to conduct studies of the transportation regulatory functions, and recommend substantive and procedural changes in the interest of integrated transportation policy.

(iii) In addition, the Executive Office should take on greater responsibility for integrating local parking capacity with the total transportation system. This might be achieved by giving the Secretary authority to make special financial assistance available to localities for the construction and operation of parking facilities, the location, size, and charges of which the Secretary found to be in accord with the needs of the total system. The existing Massachusetts Parking Authority, if made a part of the Executive Office, might be a suitable operating agency for the channeling of such assistance and for other activities designed to make parking an integral part of the regional transportation system.

B. Powers.

We judge that the following powers are essential to the functioning of a strong Secretary of Transportation:

--direct responsibility for strategic analysis and planning

--approval of all budget submissions to the legislature

--approval of major capital investments, whether or not they require legislative approval

--approval of all major contracts

--approval of all non-financial as well as financial submissions to the legislature

--approval of all applications for federal assistance

--approval of all labor-management agreements

--access to all data, reports, and other materials within the department

Every operating agency within the Executive Office should be subject to all of the above powers. To this end, the following statutory changes will be required:

--The Boards of Commissioners of the DPW and MAC, and the Board of Directors of the MBTA, should be abolished. Their powers should be vested in the Secretary, with allowance for him to delegate as much responsibility as he chooses to the agency heads.

--Chief executive authority within each agency should be placed in the hands of an individual appointed by the Governor and responsible to the Secretary.

Because of special legal restrictions, the boards of the Port Authority and Turnpike Authority will have to be preserved for the present. The following three steps, however, should be taken with respect to them:

--the Secretary of Transportation or his designee should be empowered to sit on each board, ex officio, with full voting rights.

--the Authorities should be forbidden to issue any new bonds, acquire any property, or engage in any construction (beyond normal maintenance of existing facilities) without the Secretary's approval.

--an intensive study should be conducted of how to integrate the activities of these authorities more closely with those of the other agencies within the Executive Office of Transportation and Construction.

The Advisory Board of the MBTA should not be abolished, nor should its broad power of budget review be curtailed, at this time. Given an arrangement in which the MBTA can impose property tax assessments on the localities within its jurisdiction, it seems proper that they should collectively be empowered to veto its operating budget. Indeed, this veto should extend to the capital budget as well.

C. Internal Organization.

The Executive Office should include two Deputy Secretaries, one for the Boston metropolitan area and one for the rest of the state. (The latter would be divided into several regions, which together would comprise the second Deputy Secretary's jurisdiction.) The statewide operating agencies should adopt the regional definitions promulgated by the Secretary in making their own assignments of responsibility.

D. Organization for Planning.

Just as the office of the Secretary should have primary responsibility for strategic planning, so the operating agencies should retain primary responsibility for operational planning. In order to insure that strategy and operations are well-integrated, and to keep both planning processes open to competing viewpoints, the planning staffs at each level should have the capacity and responsibility to review and critique each other's proposals. The Secretary's staff should include a wide range of professional disciplines. A large portion of it should be full-time; the rest should be "seconded" from the planning staffs of the operating agencies, which in turn could have Executive Office staff assigned to them on a temporary basis.

E. Finance.

Multi-modal investment flexibility is essential to the transportation decision process we are recommending.

Central to such financing is a state Transportation Trust Fund. The first step toward creating such a Fund must be repeal of the current constitutional prohibition on the use of gasoline tax revenues for other than highway purposes. But the Fund will need a broader base. It should include as well surpluses from the Mystic River Bridge, the harbor tunnels, and the Turnpike, and the 2-cent a pack cigarette tax currently earmarked for the MBTA.

The Trust Fund's resources should be available for expenditure on capital investment and capital maintenance, but not for operating subsidies. The Fund's area of responsibility should be state-wide.

The rights of present revenue bond-holders must, of course, be respected. There are several feasible ways to move toward flexible intermodal resource allocation while respecting these rights, however. One method is to invest surpluses in projects that fit in well with comprehensive plans and promise to be self-supporting. Another is to use surpluses to retire outstanding bonds, while incorporating into all new bond agreements a provision that surplus revenues will accrue to the Transportation Trust Fund. At times, finally,

it may be appropriate to seek bond-holder agreements to contract revisions.

F. Relations with other Executive Offices.

At least four other Executive Offices should have timely opportunity to participate in the development of, and to comment upon the official versions of, major transportation proposals. These are the following:

--Executive Office of Communities and Development

--Executive Office of Environmental Affairs

--Executive Office of Consumer Affairs

--Executive Office of Public Safety

Needless to say, serious inter-agency disputes among the Executive Offices will have to be raised to the Governor's level for decision.

* * *

We have urged that the Secretary of Transportation be equipped with great authority and a strong staff. In the sections that follow we shall indicate ways in which we believe that countervailing capabilities should be strengthened--not to dilute the decision making authority of the Secretary, but rather to encourage the use of that authority in the most thoughtful and responsive manner possible.

2. Countervailing Planning Capabilities.

Groups likely to be affected by transportation plans should be enabled to participate meaningfully in the planning process. Aside from units within the Executive Office of Transportation itself, these groups will include:

--state agencies with environmental, housing, and economic development responsibilities

--the appropriate regional planning agency

--local governments

--such established organizations as churches, universities, corporations, and chambers of commerce

--neighborhood groups

Not all will be able or anxious to participate equally. Nor is it feasible to establish a formula establishing each one's rights. The critical aim, however, must be to establish a genuinely open and pluralistic planning process. For this to be achieved, the opportunities for participation will have to be frequent and varied, and they will have to begin early in the life of each emerging proposal.

In order for open planning to be effective, the local and neighborhood participants will need improved planning capabilities, easy access to official data, and forums in which to make their contributions. Our recommendations which follow are aimed at satisfying these criteria, and also the Federal requirements for a continuing, cooperative, and comprehensive transportation planning process.

A. Improved Planning Capabilities.

Few localities and private groups have transportation planning staffs capable of making effective contributions to the kind of planning process we have in mind. They will need assistance. We perceive three main ways in which such assistance might be provided, and are inclined to favor experimentation with all three:

--the regional planning agency (in the Boston area, the MAPC) could undertake to provide advisory planning services to official local government bodies. At official local government request, it might also provide such aid to private groups. We urge that the state make funds available to these regional planning agencies for this purpose, on a "block grant" basis.

--The Executive Office of Communities and Development (C&D) could provide assistance to private groups unable for one reason or another to secure aid from the regional planning agency. Modest grants of transportation planning funds might be made available to C&D for this purpose. The main reasons for getting C&D into the process is that it will not be closely tied into the transportation planning establishment. It should tend to contribute a distinct--and, in our view, highly important--perspective.

--The Secretary of Transportation should retain discretion to provide direct assistance to localities and private groups. If the previously listed two mechanisms existed, he

would presumably do so only in very special situations. One would not wish to tie his hands, however.

In recommending support for countervailing planning, we do not mean to question the competence or good faith of the public employees responsible for official planning. Our concerns are two-fold. First, roles tend to shape perspectives, and it is important to insure that all relevant perspectives are injected with professional sophistication into the planning process. Second, it is important that citizens gain confidence that constructive participation is both possible and efficacious, and for this they will need professional advisors on whom they can rely.

Countervailing planning capabilities will not and should not be wholly dependent on government support. Private resources have been and will doubtless continue to be available on a small scale. Even more important, numerous people have demonstrated willingness to contribute their time and energy on a voluntary basis. These efforts are critical, but by themselves they are inadequate, particularly among low income groups and in rural areas of the state where technical skills are not readily available. Thus, we consider substantial state assistance through the mechanisms listed above to be justified.

B. Easy Access to Official Data.

Data relevant to transportation decisions must be made available to localities and groups in usable form if the planning process is to be open and competitive. There seem to be three major needs in this area:

--A state "Freedom of Information Act" (analogous to the Federal Act) which would go beyond present state requirements that "public documents" must be "open to inspection". Such an act would help to make effective the fundamental right of citizens to know what their government is doing. The act's provisions should apply to all transportation reports, including back-up data.

--An attempt to present and organize such data in usable form. Where possible, computer runs should be summarized, with zonal, district, and regional totals presented. Copies of key reports should be made available. Memoranda detailing the assumptions on which the studies were based should be provided.

--An open Transportation Library should be created. Several members of its staff should be available to aid those using the materials. A branch of the library should be established in the western part of the state.

C. Forums for Constructive Participation.

It would be unwise at this stage to specify in any detail the kinds of forums appropriate to the proposed planning process. We have too little actual experience to build on. The forthcoming new look at the transportation needs of the Boston region within Route 128 will provide an opportunity to experiment with a variety of formats.

We would hope that in the next year, various working committees would be formed, including government and non-governmental participants, to deal with particular controversies. These working committees should begin to operate in the early stages of transportation planning. They should not be restricted to designing facilities, as is the case with most "joint development teams." Design is a very late stage in the planning process.

The working committees should not become involved in formal voting. Experience here and elsewhere suggests that undue time will be wasted if working committees become deeply embroiled in issue of power allocation. Rather, such committees should be concerned with developing viable alternatives, with reasons given for and against.

Consensus should be developed where possible. Where it is not, direct statement of outstanding issues and conflicting interests will be more useful for the political decision-makers than submergence of such conflicts in a series of votes, a pretended consensus, or procedural hassles.

D. A "Continuing Comprehensive Planning Process."

Federal planning requirements support the kind of process we have outlined above. Federal highway legislation provides that the Secretary of Transportation shall not approve transportation projects in an

urban area of more than 50,000 population unless he finds that such projects are "based on a continuing comprehensive transportation planning process carried on cooperatively by state and local communities ...."

The policy committee of the federally required planning process should include strong local as well as state representation.

However open and pluralistic the planning process, it will require core staffing and management. In our view, these functions should be performed by the planning staff of the Executive Office of Transportation and Construction. This staff should be responsible for convening major working committees, performing all staff work not specifically assigned elsewhere, making sure that controversies are being faced rather than suppressed, and ultimately advising the Secretary and his Deputies on alternatives and recommended courses of action.

3. Procedural Due Process.

Fair and formal procedures are a necessary complement to our two previous recommendations: the strong Secretary of Transportation, and countervailing planning capabilities.

We propose two procedural elements designed to keep the decision process an open one:

--a requirement that the Executive Office of Transportation and Construction support each proposal for a new transportation facility with a solidly based analysis of alternatives and the consequences of each

--provision for an open public hearing on this analysis, conducted under the auspices of a quasi-independent review board, which would report its findings to the Secretary of Transportation.

A. The Analysis.

Federal law since 1968 has required that certain findings be made on the economic, social, and environmental impact of proposed highways financed in part with federal aid. These findings must be made public prior to public hearings on the character and location of proposed new facilities (the first of the two federally-required hearings). Similar findings and hearing procedures are required under state law with regard to new transit facilities.

We recommend that these finding requirements be expanded in coverage, tightened up in specificity, and made uniform for highway and transit facilities. Findings, together with the main evidence on which they are based, should be made on at least the following major points:

--Alternatives considered, arguments advanced in their behalf, and the agency's evaluation of these arguments.

--For each alternative considered, a review of costs and benefits with respect to (a) transportation considerations, (b) monetary considerations, (c) environmental and housing considerations, and (d) distributional effects.

--Evidence of the character and extent of participation in the planning process by agencies and groups outside the Executive Office of Transportation and Construction.

B. The Hearing.

No sooner than 30 days after the proposing agency issues its written proposal and findings, a public hearing should be convened, at which any interested individual, group, or locality could present counter-evidence and counter-arguments.

The hearing should not be run, as hearings are at present, by the agency proposing the transportation project. It should rather be conducted by a quasi-independent review board.

The review board should be responsible primarily for detailing the arguments advanced, assessing the evidence advanced in support of each position, and listing major areas of controversy. The review board's report would be a public document readily available to all parties who appeared at the hearing. Such parties (including the state agency) would then have 30 days to file a memorandum criticizing the review board's findings. Upon the expiration of 30 days, the review board's report with any such additional memoranda and the review board's responses thereto (if any) would be submitted to the Secretary of Transportation for his decision.

A review board with these functions could be constituted in a variety of ways. For example:

--it could be drawn from a quasi-judicial group of "hearing examiners" within the Executive Office of Transportation;

--it could be organized by another state agency, such as the Executive Office of Communities and Development;

--it could be an ad hoc panel of disinterested citizens, one named by the Secretary of Transportation, one by the major locality (or group of localities) affected by the project, and a third to be selected by these two.

This hearing should coincide with the first hearing currently required for federally-aided highways. The second hearing--on detailed design--should also be conducted by an independent review board.

Hearings should be conducted at times and places convenient for the people and groups most affected. All interested parties should be adequately informed of each hearing schedule well in advance.

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In developing these recommendations on the transportation planning-decision process, we have sought to reconcile the objectives of greater openness, greater comprehensiveness, and unimpaired decisiveness. We have concluded with a mix of three interlocked elements: (1) concentration of decision power and primary responsibility for strategic planning in the Secretary of Transportation, (2) countervailing planning capabilities in a wide variety of other hands, and (3) procedures designed to ensure easy access to official data and a fair hearing for all viewpoints.

We consider the establishment of such a process not only feasible, but essential to the maintenance of public support for a dynamic transportation program.

V. The Regional Transit System.

Despite the prospect of significantly increased Federal aid, the nation's transit systems are in serious trouble. Service is poor or fair at best; costs are rising sharply; patronage is steady or declining; and deficits are growing. Public recognition of the importance of transit is far greater than several years ago, but taxpayer rebellions against the spiralling deficits are also spreading rapidly. These national trends may all be observed in acute form in the Boston region.

Beginning to correct the fiscal imbalance between private and public transportation--which our Transportation Trust Fund recommendations are intended to accomplish--is only part of the solution. Equally essential to the development of a well-balanced transportation system are institutions which can provide effective transit service while keeping costs in check. Unfortunately, the cost of transit in the Boston region has not been kept in line.

The problem is not that MBTA wages are too high. It is rather that MBTA productivity and efficiency are very low compared with other large city transit systems operating buses and rapid transit.* Vehicle miles per employee and per employee dollar of compensation are low (poor productivity) and operating costs per vehicle mile are extremely high (poor efficiency). Among the many causes for this relatively unfavorable performance, the following stand out:

--A long history of demoralizing deficit operation.

--A comparably long tradition of political interference in personnel and fiscal decision-making. (The objection is not to legislative and Advisory Board involvement in broad policy-making, but rather to interference in the details of management.)

--Decades of neglect of preventive maintenance and timely modernization of the existing plant.

--A preoccupation with capital expansion to the virtual exclusion of efficient operations.

--Extraordinary work rules (e.g., the "guard law"), whose sole justification is that they create jobs and maintain the power of individual craft unions.

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* See Appendix

--A "do it yourself" policy with respect to supporting activities, pursued despite the manifest inefficiency of their in-house performance. To illustrate: in Boston 43 percent of all transit employees are trainmen or bus operators. The comparable figures for Chicago, Cleveland and Philadelphia--each of which operate surface and rapid transit systems--are 65%, 63%, and 60%. Only New York City with its massive rapid transit system has a lower percentage than Boston (35%), but even New York City's productivity, measured in terms of vehicle miles per dollar of compensation (including fringes) paid to the total workforce, exceeds Boston by 72%. A notable consequence of this "do it yourself" policy is that the MBTA deals with 27 unions. No other American transit system deals with more than twelve; most deal with one, two, or three.

Dramatic improvements in efficiency will not come easily. The need is for management and labor to work together with the aim of upgrading efficiency over a period of years. Manpower reductions should be achieved solely by attrition, though it may be appropriate to hasten attrition at times by offering bonuses for early retirement. We believe that unless such improvements are achieved, manpower reductions will come about anyway as the taxpayer revolt intensifies--forcing plans for transit extensions to be shelved and existing services to be curtailed.

The 1964 dream which produced the MBTA is currently on the verge of being shattered by the taxpayer revolt--at precisely the moment when the state and nation have become intensely aware of the need for effective public transportation. The hope of extending the system throughout the region in an efficient and effectively coordinated manner are being threatened by the failure of that system to convey a sense to the public that it uses the resources made available to it well.

The issue is whether out of this crisis can come a coherent transit development program that will produce results. Past experience would suggest a negative prognosis. The public has poured hundreds of millions of dollars into the MBTA, but the "problem" remains and in some respects worsens. The public has been promised the best in modern public transportation, yet it continues to receive the traditional service, which is often noisy, dirty, unreliable, and slow. The new South Shore Line

wil be a shining exception to this generalization, we hope, but it will serve only a small proportion of the region's riders. The need is to produce improvement that will be evident to most if not all of the region's interested citizens.

What gives us hope is the emerging recognition by key political figures and top MBTA officials that improving the system's performance is a vital order of public business. Thus, we do expect that the MBTA will do better in the future than it has in the past. To that end, we submit the following recommendations.

1. State Transportation Trust Fund.

We have previously recommended that you take the lead in securing passage of a state constitutional amendment to permit the use of highway-user tax revenues for transit as well as highway purposes. We note with pleasure that you have moved to do so.

This amendment should be viewed as just the first step toward creation of an integrated state Transportation Trust Fund. We believe that, in addition to highway-user revenues, the Trust Fund should include the proceeds of the state cigarette tax now levied for transit subsidization, and (to the extent that bondholder agreements permit) any surplus revenues generated by the state's toll bridge, tunnel, and Turnpike facilities. We do not believe that any new taxes are called for at the present time.

We believe that Trust Fund expenditures should be restricted to capital investment, capital maintenance, and research programs. In saying this, we mean particularly to exclude transit operating subsidies from eligibility.

The Fund's transit expenditures should by no means be confined to the MBTA area. The state's other urban regions, particularly Springfield and Worcester, have serious transit problems and needs of their own. Overall, we judge that there should be no need for the rest of the state to subsidize transportation in the Boston region--if only a financial structure can be established which permits the Boston region flexibility in the allocation of all resources available for transportation. The state-wide responsibility of the Trust Fund will be vital to the maintenance of public support for state taxation to fuel it.

(For further discussion of the Trust Fund, see above, pp. 9-10.)

2. The MBTA's Pending Request for $300 Million Additional Bonding Authority.

We are persuaded that a balanced transportation program must include massive investment in public transportation. The proposed new bonding authority is clearly essential to that end. Though the MBTA has no intention of floating any bonds under it before 1972, it will need the authority much sooner as a bargaining counter to secure Federal aid commitments. The Senate has recently approved President Nixon's transit bill, which would provide $3.1 billion Federal dollars for transit grants-in-aid over the next five years. To the extent that funding permits, the matching formula is 2-1. Thus, $300 million in local money could produce a total capital outlay of $900 million.

This adds up, we believe, to an overwhelming argument for legislative action this year in support of the proposed bonding authority.

BUT: we cannot accept the view that the proposed authority should be granted unconditionally. Considering that it is the only major lever available, we judge that it should be made contingent upon a showing of vigorous labor-management commitment to achieve efficient utilization of the region's existing enormous transit investment. To this end, we propose that the legislation make actual issuance of the bonds conditional upon:

--MBTA submission to the Governor within 12 months of a concrete program, to which labor has agreed, for substantially improving productivity and efficiency over a 5-10 year transitional period, and

--acceptance by the Governor of said plan as adequate.

In addition, we believe that the legislation should require that one of the following two conditions be met:

--that interest and amortization on the bonds be paid from a state funding source (e.g., the Transportation Trust Fund), or

--that, if the bonds are to be serviced from local tax revenues, each flotation require approval by the MBTA Advisory Board.

3. Toward Improved MBTA Efficiency

The critical need is for genuine commitment to the objective by all affected parties--the political community, the management, the workforce, and the tax-paying public. The basic method must be to win whole-hearted labor cooperation. This can be done, if at all, only by demonstrating to labor that this cooperation will pay off in improved wages, working conditions, and pride in being part of a respected operation. Over the long run, moreover, we are confident that this approach will yield more transit jobs than continuation of the present arrangement.

Specifically, we urge that the following steps be taken:

(i) As mentioned above, management and labor should jointly develop a 5-10 year transitional program for improving MBTA productivity and efficiency. The relevant measures of improved performance should be: vehicle miles per total employee and vehicle miles per dollar of compensation paid to all employees, operating costs per vehicle mile, percentage of owned vehicles in daily service, and transportation employees as a percentage of total employees. A basic premise of the effort should be that any workforce reductions will be achieved by attrition. This should not preclude the offering of attractive early retirement options to increase the rate of attrition.

(ii) A basic aim should be to narrow the range of issues currently submitted to arbitration. Arbitration has tended to become an excuse for neglecting creative face-to-face negotiation between management and labor. We believe that direct negotiations should be used to achieve consensus on the linkage between increased compensation and new transit investment on the one hand, and improved productivity on the other.

(iii) Top priority in MBTA investment planning should be given to new maintenance facilities and garages, and to the provision of attractive employee locker and rest room facilities. The awful obsolescence and squalor of the existing facilities tend greatly to inflate operating costs and depress employee morale. In our judgment, a transformation of the organization's self-image is the basic prerequisite to dramatic service and productivity improvement. Such a transformation can only be achieved if the operating employees see and share in tangible progress toward a modern, efficient, high amenity system all around them.

(iv) Greater efforts should be made to recruit young, innovative, and vigorous middle managers. In addition, great attention should be paid: (a) to management training and (where possible) rapid promotion of promising individuals already in the MBTA organization, and (b) to securing the services of first-rate people on loan for periods of one to three years from corporations and universities.

(v) Higher priority in transit investment planning should be given to road as opposed to rail transit. The great advantages of road transit are (a) that it can share right-of-way cost with the vast number of other road vehicles, (b) that, consequently, lower volumes are required to support each route, and many more routes can be supported, (c) that over time the service structure can inexpensively be adapted to changing land use and travel patterns, and (d) that the right-of-way cost is eligible for highway aid. Bus transit can also be faster than rail transit, because non-stop express service is more frequently feasible. In order for this potential to be realized, of course, either decongested highways--like the Mass Pike--or exclusive bus lanes are needed. We hope that the upcoming Comprehensive Planning Review of transportation investment needs within Route 128 will give serious consideration to bus preference-computerized metering schemes for decongesting freeways and to exclusive bus lanes as priority candidates for highway investment.* We urge the MBTA to participate whole-heartedly in this analysis, with an eye toward maximum transit utilization of the region's highway investment.

(vi) Greater attention should also be paid to the development of flexible collector-feeder and downtown distributor systems. It is not enough to build rail transit extensions; one must get the people to them. Parking lots and fixed-route feeder systems are part of the answer. In future, we believe that demand responsive, flexibly routed feeder systems (e.g., dial-a-bus) will become increasingly important. Downtown, the need is to intercept as many automobiles as possible before they reach the CBD. This will require an integrated downtown parking-transit policy. The transit portion of the resultant system will be called upon to provide reasonably fast, high amenity movement from the parking lots to the CBD, and high quality circulation within the CBD.

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* See Part I of the Task Force Report (January, 1970) for discussion of the application of highway-oriented transit to the Southwest Corridor.

4. Subsidies--Their Magnitude and Distribution.

There is substantial consensus in the region today that transit should be subsidized. Indeed, even the recent, much-noted, transit taxpayer revolt seems to be directed elsewhere than at the idea of subsidizing transit itself. Those protesting MBTA assessments seem to be expressing their disapproval of the following:

--the recent very rapid growth in the operating deficit,

--the current fiscal arrangement, whereby the deficit is met from local property tax revenues,

--the apparent inefficiency of the system as a user of public resources, and

--the fact that many suburban locales receive little or no service.

We believe that the general operating deficit should be substantially reduced, perhaps even eliminated, over the next ten years--recognizing, however, that specific subsidies may be necessary to meet the following objectives:

--capital expansion,

--capital modernization to achieve improved efficiency,

--research, development, and demonstration of new technologies and service concepts, and

--serving the high priority needs of particularly immobile groups: e.g., the elderly, the disabled, and the very poor.

As far as subsidies to specific groups of people are concerned, present subsidy patterns are just the reverse of what sound public policy would require. The most heavily subsidized patrons, in general, are those with the highest incomes. For example, in 1967, Newton's tax assessment as a percentage of the actual transit operating loss incurred in serving the city was 49.7%, whereas Boston's tax assessment was 115% by the same measure. Yet Newton's median family income was over 1 1/2 times Boston's. * The current concentration of transit investment on suburban rail extensions seems likely to compound this tendency unless some new policies are adopted. In

* Final Report of the Budget Committee relative to MBTA Local Service Deficit Assessment Formulae, MBTA Advisory Board, Feb. 23, 1968.

this connection, we recommend:

--An integrated policy of increased long-distance commuter fares and increased downtown parking charges,

--that serious consideration be given to implementation of an incentive system of transit subsidies, designed to encourage the concentration of subsidies on those patrons least able to afford private transportation. The toughest form such an arrangement might take would be to mandate break-even operation, except as funds were contributed by outside sources for specific purposes. The major purposes would be the four listed above (supplemented, e.g., by School Board payments for reduced school-trip fares). Thus, the General Court or the MBTA Advisory Board might appropriate a fixed sum each year for services carefully tailored to the needs of particularly immobile groups. The General Manager of the MBTA would be required to file a report each year explaining how his use of the money fulfilled this mandate.

5. Possible Spin-Off of MBTA Functions.

The case for regional organization varies in strength from one aspect of transportation to another. It is greatest with respect to investment in major line-haul facilities. It is least with respect to local circulation outside the core and many operating functions that can easily be contracted out.

It should not be uncritically assumed that efficiency is optimized by having a single agency plan and manage all transit service in the region. Indeed, such a large organization may become unwieldy and rigid. Where such is the case, a good deal of contracting out and decentralizing of responsibility to the region's localities may be wise. Some decentralization may indeed be justified even where the organization is highly efficient, simply to keep government as close to the people as is compatible with regional needs.

The most obvious candidates for local responsibility are local circulation and feeder services outside the core. Individually or (preferably) in sub-regional

groupings, localities could choose different service, subsidy, and management strategies with little effect on the larger region. They could be free (a) to contract with the MBTA to operate the services they chose to offer, (b) to use private contractors, or (c) to set up their own local transit agencies.

Decentralization might well strengthen the regional institution in performing its most critical functions. The MBTA would be under less pressure to provide uneconomic services, and its deficit would be much reduced. The localities would probably feel less rebellious against the MBTA if all but the truly regional service and subsidy choices were in their own hands. The MBTA management in turn would be freer to concentrate its energy on genuine regional matters.

Within the regional line-haul system itself, numerous functions now performed in-house could well be contracted out. Indeed, the whole system could be managed by private firms on contract. Nor would it have to be managed by a single firm. The various routes could be managed separately if this were thought desirable, so long as the MBTA retained firm control over the maintenance and scheduling of shared (mainly CBD) facilities.

We are not here advocating a break-up of the MBTA. If a regional organization can perform the total transit function with a high degree of flexibility, efficiency, and responsiveness, there are clear advantages in permitting it to do so. We believe that the burden must be on the MBTA, however, to demonstrate that its performance is properly so described.

With respect to decentralization, we believe that the choice should be up to the localities. We urge that the region be divided into five to ten sub-areas, and that the localities within each be empowered to take over local circulation service if they wish.

With respect to contracting out, we believe that authority must remain with the MBTA management for the time being. If in several years little progress toward improved productivity is evident, however, the broader political community may wish to step in.

* * *

The MBTA's current organization and scope of responsibility need not be taken for granted. They were established only half a dozen years ago, and there is currently a crisis of confidence in their value. Limited adjustment in the direction of enhanced local responsibility seems called for immediately. More fundamental revision will merit trial if the MBTA's performance fails to improve over the next several years.

VI. Intercity Transportation.

The Task Force has focused its attention on problems of intra-metropolitan travel within the Boston region. Our resources have permitted no more than a highly general consideration of the problems of intercity transportation.

There are, of course, a number of existing detailed studies of this problem, including the just released report of the MAPC on future jetport needs, Massachusetts Aeronautics Commission and Port Authority studies of the same issue, reports of the New England Regional Commission, and the federal Northeast Corridor study. What is needed now is not more study of the traditional kind, but a sorting out of the options, with the full range of costs and benefits made clear.

To help guide this sorting out process, we wish to record several general conclusions. We believe them to be particularly important at this time because major decisions about intercity transportation, involving hundreds of millions of dollars, will have to be made in the near future. These decisions will involve assigning priorities among a number of existing and emergent modes--conventional air, V/STOL,* and high speed ground transportation--as well as choices among investment options within modes (expansion of Logan versus a second jetport, for example). Such decisions should be made with three main considerations in mind:

--planning and decision making about future investment should occur within a truly multi-modal framework. The need for jetport expansion, for instance, should be assessed in the context of the full range of developing technological options, including high speed ground and V/STOL alternatives.

--the planning process should be multi-value in orientation. That is to say, it should give full consideration to non-transportation criteria that may be relevant to the choice among transportation investment options. We would note particularly that the most powerful argument in favor of high

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* "vertical and short takeoff and landing"

speed ground investment options is likely to be environmental. The adverse impacts of airport facilities on the quality of life in nearby neighborhoods and on the ecology of wilderness areas have to date, in our judgment, received inadequate consideration in intercity transportation planning. The potential of high speed ground transportation for relieving air traffic demand in the Boston region is indicated by the fact that over one-third of commercial air travelers leaving Boston today are destined for New York City.

--the planning process should be open to inputs from the full range of interested parties. We recognize that the process of planning for intercity transportation cannot be as fully participatory as that of planning for intra-metropolitan transportation. Each major choice (e.g., a second jetport vs. a combination of V/STOL and high speed ground development) is enormous in magnitude and involves an incredible diversity of interested parties. Those in the Boston region who might participate have their counterparts in numerous other states and localities. Nonetheless, it is essential that the planning process ascertain and accord heavy weight to typical local and neighborhood concerns. This requires that representatives of such concerns be given a full opportunity to present their views. Once the major choices have been made, moreover, and the key issues are of detailed implementation, we believe that the process should come more closely to approximate (and be integrated with) that which we have recommended for intra-metropolitan transportation planning.

Within the next two or three years, critical intercity transportation investment choices will have to be made. These choices will not, of course, be made by the Governor, or even by the Commonwealth, alone. We deem it vital, however, for the Governor to develop a policy

position and seek vigorously to secure its implementation. As the first step in developing such a position, we urge you to initiate a review of the major options,conducted by advisors in whom you place great personal trust. One method of doing so might be to convene a new Task Force similar to this one. Another would be to rely on an ad hoc group of your key transportation advisors both in and out of the state government. We have no strong feeling about which of these options should be chosen.

Pending the completion of such a detailed review of the region's intercity transportation plans and organizational framework--hopefully, like this one, to be completed within six to eight months--we strongly recommend that every effort be made to avoid large new commitments that would have the effect of foreclosing important future options.*

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*See ADDITIONAL STATEMENT ON INTERCITY TRANSPORTATION By CHARLES T. GRIGSBY, at p. 37.

VII. Automobile Pollution.

Our attention has been drawn to the problem of automobile pollution because of its risks to human health. Given constraints of time and resources, the Task Force has made only a very general review of those risks. We have concluded that while a good deal is known about the harmful effects, there are tremendous gaps in available knowledge. We do know enough to be intensely concerned about what we do not know. Neither panic, complacency, nor a rush to institute operational programs strike us as the proper responses. The highest priority need, we judge, is for a vigorous program of knowledge-seeking.

1. What is known?

First, what is known? The nature and amount of automobile pollution in the air at any one time depends upon the composition of the fuel, the nature and efficiency of the motor which burns that fuel, and the nature of the physical environment (including wind conditions, the presence of high buildings, the temperature and humidity of the air, etc.), and the number and speeds of vehicles on the road. There are four major contaminants produced by the internal combustion engine: lead compounds, carbon monoxide, various hydrocarbons and derivatives, and oxides of nitrogen. (These are in addition to the outputs of carbon dioxide and water which exist naturally in large quantities in the air and are not generally considered "contaminants," even though increasing concentrations of carbon dioxide may have profound long-term effects on the weather by raising air temperature.)

Harmful effects of the contaminants vary with the chemical. Lead can be poisonous by itself (note the dangers of lead-based paints); it also tends to leave deposits in the combustion chamber which in turn make it more difficult to control emissions of the other pollutants. Carbon monoxide, when human beings are exposed to abnormally high concentrations of it for prolonged periods of time, can result in impairment of time-interval discrimination (how one perceives time elapsed), of vision, and psychomotor performance. Oxides of nitrogen are known to produce oxidants and ozone, principal ingredients of "smog." These, in addition to certain hydrocarbon derivatives found in automobile exhaust, can result in eye and respiratory irritation. Under laboratory conditions, some components of these exhaust gases have been shown to produce toxicity (i.e., the burdening of biological systems with chemicals which are poisonous in large doses); changes in developing embryos, genetic changes, and cancer.

One other established fact is extremely significant: existing emission control technologies tend to confront us with trade-offs among pollutants. If non-leaded gas, for instance, contains aromatics in large amounts, the resulting exhaust may contain an increase in the quantity of cancer-producing agents, which may have more serious impacts than the lead. A similar trade-off tends to occur between carbon monoxide and hydrocarbons on the one hand, and oxides of nitrogen on the other. Carbon monoxide and hydrocarbons are produced by inefficient combustion. They are what most current pollution control devices attack. Oxides of nitrogen, on the other hand, are products of all high temperature and high compression combustion, but they increase in amount as combustion becomes more efficient. (A vehicle operating at high and even speeds on an expressway emits less carbon monoxide and hydrocarbons, but more oxides of nitrogen.) It is likely, therefore, that reductions in the emission of carbon monoxide and hydrocarbons expected from new control and inspection devices will be accompanied by increases in the emission of oxides of nitrogen, which some people believe may be even more harmful. New technologies may be developed to deal separately with the various pollutants, but for the present we seem to be confronted with unsatisfactory trade-offs.*

Finally, the context is one in which the extent of automobile ownership and use in this state are rising steadily, at a rate of about 3 percent (or 70,000 vehicles) per year--a trend expected to continue. (Gas consumption per car per year is remaining about constant.) Boston's topography, climate, wind conditions, and other factors seem so far to have produced a much less severe pollution problem

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*Emissions of oxides of nitrogen have increased dramatically over the last 20 years with the introduction of increasingly higher compression and higher temperature engines. Recently promulgated federal standards require that compression ratios be cut back to decrease these oxides. At the same time, presently operational carbon monoxide and hydrocarbon control techniques have resulted in some increase in oxides of nitrogen, although in varying amounts depending on the control devices. This is because most of these devices have resulted in the efficient burning of more air at high temperatures, a feature that necessarily produces more oxides of nitrogen. Thus, even though high engine compression ratios are a more important producer of oxides of nitrogen, devices for the control of carbon monoxide and hydrocarbons have also contributed to the increase of oxides of nitrogen. If oxides of nitrogen do prove to be more biologically harmful, the widespread usage of present emission control devices may be actually to worsen the health situation, at high economic cost.

than in a number of other urban areas, such as New York and Los Angeles. For reasons elaborated below, however, we cannot say that pollution in Boston and other areas of the state is at "safe" levels. And, in any event, the trend is upward.

2. What is not known.

We currently know little about a number of significant factors relevant to developing sound public policy in this area. These include:

--the cumulative effects of the above chemicals on a healthy human being over a lifetime. We are not, therefore, in a position to establish with confidence standards for "safe" levels of exposure.

--what the future holds with respect to the emergence of feasible technological alternatives to the internal combustion engine. The basic truth is that we are not on the verge of any of the alternatives becoming reasonably cost effective; but there is a need for vigorous continuing research and development in this area.

--local air quality characteristics. These vary greatly from hour to hour, day to day, street to street, season to season. Facts about local air quality are required on a very detailed basis (down to particular tunnels and interchanges, for example) to determine actual conditions and particular danger points, and to decide what standards are acceptable and achievable. The problem tends to be worst in downtown areas of high density, high buildings, and high traffic volumes. (Fortunately, these are also the areas where it is most feasible to substitute public for private transportation.)

3. The Risks.

The most important pollution risk, of course, is to human health--from minor respiratory ailments through cancer to unpredictable long-range genetic mutations. We do not really know what the degree of risk is. To the extent that pollution may have serious consequences for even a small segment of the total population, we must be concerned.

A second risk is that piece-meal efforts at pollution control may accomplish nothing but a switch from one pollutant to another at very high cost and with serious long-run biological consequences.

A third risk is that such piece-meal efforts may divert attention from pursuing more fruitful policies. They may lead to a false sense of security, public apathy, and eventual bitter disillusionment.

4. Conclusions and Recommendations.

We are led to the following conclusions and recommendations:

(i) A large and sustained program of basic research is needed to study the health effects of pollution, alternative control devices, alternatives to the internal combustion engine, alternative transportation technologies such as "dual-mode" vehicles. The Commonwealth and its various educational and scientific institutions should play a significant supporting role in what should be a nationwide effort managed and financed at the federal level.

(ii) A significant program of applied research at the state level is needed to find out how serious the problems are in this region. One of the objectives of such research should be to identify meaningful local standards and to develop programs of control and implementation. The hundreds of millions of dollars that would be required to establish and operate some of the control proposals now circulating (estimates vary from $20 to $100 million a year) would be better spent on research to figure out what really makes sense, in both long and short range terms.

(iii) The only certain way to reduce automobile pollution is to reduce the usage of automobiles, so long as automobiles rely on internal combustion engines. To the extent that there are viable choices between public transportation and private automobiles in densely built-up areas where pollution levels are typically highest, pollution control should be considered an important factor on the side of public transportation.

(iv) The state should develop a strong and integrated environmental planning process, similar to the transportation planning process we have recommended. Pollution control

should be an important part of such an environmental process. The forthcoming Executive Office of Environmental Affairs offers the obvious organizational focus of such an effort. It should be constituted to provide effective and continuous interaction with the transportation planning process.

(v) To the extent the state becomes involved in operational programs, in order to comply with federal standards or for other reasons, these programs should be of a pilot nature. This means that they should be studied intensively during a clearly delineated "first phase" so that cost, bureaucratic procedures and other factors can be measured against the results achieved.

VIII. Conclusion.

Out of the problems and opportunities facing transportation in Massachusetts today, we have great hope that significant progress can be made. The objective of an integrated and balanced system, benefiting all the people in the state, is of course widely shared. The challenge is to move rapidly to achieve it.

It would be helpful if a number of our recommendations--particularly those concerned with the organization of transportation policy-making within the state government--could be enacted into legislation this year, to become effective early in 1971. We realize that such action would launch the Executive Office of Transportation in a more highly developed manner than presently planned for its initial period, but we judge that the analysis this Task Force has made--with the help of many others both in and out of state government--should suffice as the basis for consideration of these proposals now. Critical substantive decisions about transportation facilities and services have to be made within the next year or two; action now on structural changes should enable the Secretary to move immediately into mastering these substantive issues rather than having to be preoccupied with repeating during the first years of his administration the organizational analysis already conducted by this Task Force. Our conclusions coincide closely with views held by many knowledgeable people in both political parties; indeed, most of our key recommendations are identical to policy positions reflected in bills currently pending in the legislature. Action now on these recommendations would enable the new Secretary of Transportation to move with the authority he will need from the very beginning of his term of office.

We have tried to describe the problems we have found and to suggest means for beginning to solve them and to move toward a more integrated system. Your mandate to us has been challenging. With the submission of this concluding part of our report, we ask your permission to consider our task completed.

Respectfully submitted,

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June, 1970

ADDITIONAL STATEMENT ON INTERCITY TRANSPORTATION

By CHARLES T. GRIGSBY

The Task Force report to the Governor notes that there have already been a number of detailed studies relating to the problems of Logan airport and intercity transportation. Among these studies are the Hartman study of the Massachusetts Port Authority; the Bolt, Beranek and Newman study; the MAPC report; the Northeast Corridor study, and others.

Two major problem areas have been identified and demand attention.

The first problem is the problem of extreme and unrelenting noise pollution to which the communities around Logan airport are subjected. There need not be more time consuming and costly studies to determine that the noise pollution factor is critical, that it aggravates and disrupts the lives of local residents and has been long and widely recognized as harmful to the hearing of youngsters. Some studies have detailed this problem, others have simply made note of it. In any case it would be procrastination to restudy it.

> Recommendation # One: That the Governor direct his advisors on transportation to submit, within 45 days, a workable list of measures to substantially reduce the level of noise pollution emanating from Logan airport and thereafter begin to implement those measures. Such measures should include soundproofing, curfews, traffic rerouting and test restrictions.

The second major problem area concerns the integration of airport planning with regional ground transportation planning. Within that larger problem is the question of local input into the entire decision making process. This does not mean token representation on boards and committees.

The Task Force report speaks to the necessity for decision making within a multi-modal, and multi-value framework. The writer agrees with that position. Planning within that new framework needs to be

undertaken soon, and should not become the casualty of election year politics, nor suffer from a reluctance to challenge the autonomy of the MPA. It will take many months to develop new plans, and many months and even years to implement them. The time to begin is now.

Recommendation # Two: That an integrated planning process be developed for intercity transportation by the 12 month restudy project which the Task Force recommended in our January report and and which is now being designed.

Recommendation # Three: That the Governor call a cessation to any expansion and investment at Logan which would foreclose future options, until such time as an integrated plan for intercity transportation is adopted. This should include cessation of further landtaking, runway expansion, facility expansion, and other major current or new investments.

APPENDIX

A COMPARATIVE ANALYSIS OF THE PRODUCTIVITY AND OPERATING EFFICIENCY OF TRANSIT SYSTEMS IN THE UNITED STATES OPERATING SURFACE AND RAPID TRANSIT SERVICE

Introduction

There is little question that public mass transportation systems are a vital component of our largest cities and that the revenue generated by these systems has been unable to cover capital costs and in some instances operating costs. The legitimate question then becomes: If subsidies are necessary, what guarantees do the taxpayers have that their dollars are being utilized in an efficient manner by the transit system?

The Task Force, operating under severe budget and time constraints, has undertaken a survey of the five transit systems in the United States which operate both surface and rapid transit systems.* In addition to Boston, they include: New York City, Philadelphia, Chicago, and Cleveland. Although the transit operations in these cities are similar inasmuch as rapid transit trains and diesel buses are operated in each, there are technical differences in the systems which affect costs. These include:

--Boston's rapid transit trains have a maximum length of four cars, whereas in Chicago, Philadelphia, and New York City, 6 to 10 car trains operate. But, Boston's "guard law" which requires one man for each two cars reduces significantly the economies which might be generated from operating longer trains.

--New York City's rapid transit network is in effect a combination of three separate systems and as a result has a relatively inefficient route pattern. Chicago depends heavily on obsolete elevated lines with severe speed restrictions. Boston's Forest Hills-Everett elevated route likewise suffers from low operating speeds. On the other hand, Cleveland's rapid transit system features widely spaced stations and significantly higher operating speeds.

--Both Boston and Philadelphia operate streetcars in subways and on the surface. Each car requires an operator or conductor. Maintenance costs for the streetcars are high inasmuch as they have all been in service over 18 years and repair parts are sometimes difficult to obtain.

* "Surface"refers to bus and streetcar operations; "rapid transit" generally refers to high level loading, grade separated, subway or elevated trains.

Despite these differences, the Task Force is convinced that comparative productivity and efficiency measures can be developed which are meaningful in assessing the relative performance of these systems.

Measures of Productivity and Efficiency

The basic product of a transit company is the vehicle mile. The attractiveness of the product ultimately determines whether vehicle miles will be translated into passenger miles. Therefore, ratios which relate vehicle miles to number of employees and/or the amount of compensation paid to employees are perhaps the best single measures of employee productivity. Of course, vehicle miles per employee are affected by the operating speeds, which in turn are heavily influenced by congestion, nature of routes, etc. Fortunately, data are available on system operating speeds; thus one can adjust productivity data to take into consideration differences in operating speeds.

Operating efficiency of transit companies can be measured by comparing costs per vehicle mile. As noted previously, this statistic is influenced by length of rapid transit trains, but for surface systems the cost units are similar. Again, operating speed will affect costs, for the labor component per mile will decrease as system speed increases.

Differences in employee wage rates per hour, with and without fringes, are of interest, but can prove misleading. The public might criticize high wage rates when in fact such rates would be warranted for highly productive employees. Similarly, unproductive work practices such as prohibitions against overtime can result in relatively low annual income per employee even with a high hourly rate.

When analyzing transit operations, it is important to distinguish between transportation employees (motormen, trainmen, bus operators) who are directly responsible for producing the transit product, and the supporting organization. If the ratio of transportation to total employees is low, it may indicate that the supporting organization (maintenance, power and structures, right of way, general and administrative) is too large.

Finally, the percentage of vehicles owned in daily service will give an indication of the productive use of capital. The trade-off between capital costs and operating

costs is most interesting. New equipment can be purchased frequently, maintained poorly, and taken out of service early in its life, thereby reducing the percentage of vehicles owned in actual service. Maintenance costs are reduced, but capital costs are inflated.

Findings

The basic statistics and comparative ratios are found in the attached Exhibits. In all cases, an index has been constructed with the value for Boston equal to 100. Thus, percentage differences are obtained by subtracting 100 from the index value. For example, the index of vehicle miles per dollar of compensation (including fringes) for total employees of the Chicago system is 195. This means that on the basis of this measure, the productivity of Chicago is 95% greater than Boston.

Some of the highlights of our findings are as follows:

Measures of Productivity

--In terms of the two key measures of productivity, the other systems are substantially more productive than Boston. Vehicle miles per employee ranged from 61% greater (Philadelphia) to 112% greater (Cleveland). Vehicle miles per dollar of compensation (including fringes) to the total transit workforce ranged from 72% greater (New York City) to 149% greater (Cleveland). These comparisons are drawn from the following statistics in the attached Exhibits:

	Boston	Phila	NYC	Cleve	Chicago
Veh. Mi./ Total Employee	100	161	180	212	184
Veh. Mi./Dollar of Compensation incl. fringes to total employees	100	NA	172	249	195

--Only a small portion of this difference is explained by relative operating speeds. System speeds are only 14-42% greater in the other cities.

--The productivity of Boston's surface transportation employees (bus drivers and streetcar operators) is not out of line with other cities.

--The productivity of Boston's rapid transit transportation employees is substantially poorer than New York City and Cleveland, but not significantly different from similar employees in Philadelphia and Chicago.

--The primary reason that productivity for the total MBTA workforce is relatively low is that the percentage of total employees performing transportation functions (motormen, trainmen, bus drivers) is low. It appears that with the exception of New York City and its unique subway system, the other cities need significantly fewer employees performing supporting functions (general and administrative, power, way and structures, etc.)

Measures of Efficiency

--The data indicate clearly that MBTA rapid transit costs per vehicle mile are substantially greater than those in any of the other cities. In terms of transportation cost per rapid transit vehicle mile, the other cities are operating at 33% to 47% of Boston. In other words, Boston's costs by this measure range from two to three times those of the other cities. And maintenance costs per rapid transit mile are 39% to 79% of Boston. In other words, Boston's costs by this measure range from 1 1/4 to 2 1/2 times those of the other cities.

--Operating costs per surface vehicle mile are slightly less than those in New York City (which has extremely high maintenance costs), but significantly greater than Philadelphia, Cleveland, and Chicago.

--Boston's percentage of rapid transit vehicles owned in daily service is 57% compared to 75-95% in the other cities. Similarly, Boston's percentage of surface vehicles in daily service is 75%, whereas the percentage in the four other cities ranges from 80-95%.

Measures of Compensation

--Boston's surface drivers and rapid transit motormen receive an hourly wage with fringes that typically ranges from about 5% below to 10% above the other cities.

--The annual wage and fringe salary levels for the total workforce in Boston are slightly below New York City but 10-20% higher than those received in Chicago and Cleveland.

Conclusions

--The MBTA system is significantly underproductive in terms of vehicle miles achieved per dollar of total employee compensation.

--Only a small part of this poor productivity can be explained by differences in system operating speeds.

--The MBTA is relatively inefficient in terms of operating costs per rapid transit vehicle mile compared to all cities, and per bus mile when compared to Philadelphia, Chicago, and Cleveland.

--The MBTA appears to own too many vehicles relative to the number needed for daily service.

--The MBTA may have too much of its resources devoted to supporting activities as opposed to direct transportation functions. Specifically, the functions of maintenance of way and structures, power generation, and general and administrative overhead should be analyzed more closely.

--MBTA compensation is not significantly out of line with levels in other cities, but in terms of productivity received for the compensation, Boston's record is significantly poorer.

GRAND SUMMARY

RELATIVE MEASURES OF PRODUCTIVITY AND EFFICIENCY (BOSTON=100)

STATISTIC (1969)	BOSTON	PHILADEL.	NEW YORK	CLEVELAND	CHICAGO
Relative Productivity					
1. System Measures:					
Veh. Mi./Veh. Hr.	100	114	142	119	120
Veh. Mi./Transp. Employee	100	115	218	141	121
Veh. Mi./Total Employee	100	161	180	212	184
Veh. Mi./Dollar of Compensation without Fringe to Transp. Emp.	100	124	224	153	118
Veh. Mi./Dollar of Compensation without Fringe to Total Emp.	100	187	172	248	189
Veh. Mi./Dollar of Compensation including Fringe to Transp. Emp.	100	NA	225	154	122
Veh. Mi./Dollar of Compensation including Fringe to Total Emp.	100	NA	172	249	195
2. Rapid Transit Measures					
Veh. Mi./Veh. Hr.	100	95	103	163	132
Veh. Mi./Transp. Employee	100	118	260	245	109
Veh. Mi./Dollar of Compensation without Fringe to Transp. Emp.	100	108	228	NA	100
3. Surface Transit Measures					
Veh. Mi./Veh. Hr	100	115	78	119	88
Veh. Mi./Transp. Employee	100	113	87.5	134	122
Veh. Mi./Dollar of Compensation without fringe to Transp. Employees	100	124	85	NA	116

GRAND SUMMARY (CONT.)

STATISTIC (1969)	BOSTON	PHILADEL.	NEW YORK	CLEVELAND	CHICAGO
Operating Efficiency					
4. Rapid Transit					
Transp. Cost/Veh. Mi.	100	47	44	33	43
Maint. Cost/Veh. Mi.	100	79	77	39	60
Other Cost/Veh. Mi.	100	20	30	NA	NA
Total Cost*/Veh. Mi.	100	36	40	NA	NA
5. Surface					
Transp. Cost/Veh. Mi.	100	64	99	52	68
Maint. Cost/Veh. Mi.	100	118	195	60	112
Total Cost*/Veh. Mi.	100	76	105	NA	NA
Compensation					
Surface Driver Wage/Hr. with Fringe	100	92.5	80-89	104	98
Rapid Transit Motorman Wage/Hr. with Fringe	100	94	91-97	106	99
System Wage & Fringe (annual) for Transp. Emp.	100	NA	97	91	100
System Wage & Fringe (annual) for Total Emp.	100	NA	104	85	94

*(Excluding depreciation and fixed charges)

TOTAL SYSTEM

STATISTIC (1969)	BOSTON	PHILADEL.	NEW YORK	CLEVELAND	CHICAGO
Veh. Miles/Veh. Hour	10.6	12.05	15.0	12.6(Est.)	12.7(Est.)
Index	100	114	142	119	120
Veh. Miles/Transp. Emp.	15,206	17,452	33,100	21,423	18,462
Index	100	115	218	140.9	121.4
Veh. Miles/Total Employee	6,482	10,473	11,701	13,795	11,952
Index	100	161	180	212.4	184.1
Ann. Wages/Transp. Emp.	$9,223	$8,537	$8,941	$8,501	$9,478
Index	100	92	96.6	91.8	102.4
Ann. Wages/Total Emp.	$9,863	$8,540	$10,336	$8,483	$9,598
Index	100	86	104	85.7	96.9
Fringes/Transp. Emp.	$1,845	NA	$1,755	$1,606	$1,561
Index	100	NA	95.1	87.0	84.6
Fringes/Total Employee	$1,972	NA	$2,029	$1,602	$1,561
Index	100	NA	103	81.2	79.1
Wages & Fringes/Trans. Emp.	$11,067	NA	$10,696	$10,107	$11,042
Index	100	NA	96.7	91.4	99.8
Wages & Fringes/Total Emp.	$11,835	NA	$12,365	$10,085	$11,159
Index	100	NA	104	85.2	94.3

TOTAL SYSTEM (CONT.)

STATISTIC (1969)	BOSTON	PHILADEL.	NEW YORK	CLEVELAND	CHICAGO
Veh. Miles/Transp. Emp. Dollar of Compensation (No Fringe)	1.649	2.04	3.70	2.52	1.948
Index	100	124	224	153	118
Veh. Miles/Total Employee $ of Compensation (No Fringe)	.657	1.23	1.13	1.63	1.245
Index	100	187	172	248	189
Veh. Miles /Transp. Employee $ of Compensation(w. Fringe)	1.374	NA	3.09	2.12	1.672
Index	100	NA	225	154	122
Veh. Miles/Total Emp. $ of Compensation(w. Fringe)	.548	NA	.946	1.368	1.0689
Index	100	NA	172	249	195
Transp. Employees as a Percent of Total Emp.	42.6%	60%	35%	63.4%	64.7%

RAPID TRANSIT

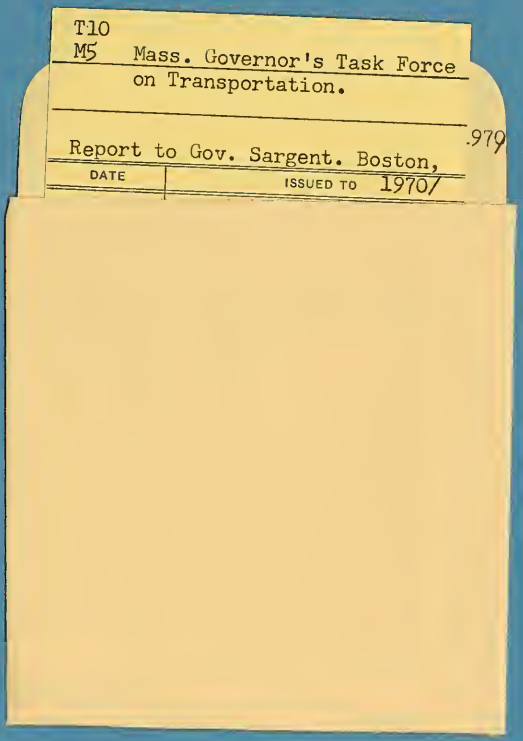
STATISTIC (1969)	BOSTON	PHILADEL.	NEW YORK	CLEVELAND	CHICAGO
Veh. Mi./Veh. Hour	18.02	17.06	18.5	29.3	23.7
Index	100	95	103	163	132
Veh. Mi./Transp. Employee	18,308	21,687	47,604	44,951	20,010
Index	100	118	260	245	109
Transp. Cost/Veh. Mile	109.73¢	51.66¢	47.91¢	36.23¢	46.8¢
Index	100	47	43.6	33	43
Maint. Cost/Veh. Mile	20.66¢	16.38¢	15.94¢	8.05¢	12.3¢
Index	100	79	77	39	60
Other Oper. Cost/Veh. Mile	124.69¢	25.05¢	37.95¢	NA	NA
Index	100	20	30.4	NA	NA
Total Oper. Cost*/Veh. Mile	255.08¢	93.09¢	101.80¢	NA	NA
Index	100	36	40	NA	NA
Percent Vehicles in Daily Svc	57%	75%	90-95%	89%	81%
Index	100	131	158-166	156	142
Motorman Wage/Hr. (No Fringe)	$4.2375	$3.81	$4.1625-4.46	$3.75	$4.296
Index	100	90	98-105	88.5	101
Motorman Wage/Hr. With Fringe	$5.50875	$5.17	$4.9796-5.335	$5.81	$5.43
Index	100	94	90.6-97.1	106	99
Annual Wage/Transp. Emp.	$7,020	$7,700	$8,086	NA	$7,626
Index	100	109	115	NA	108
Veh. Mi./Transp. Emp.Dollar of Compensation	2.61	2.82	5.94	NA	2.62
Index	100	108	228	NA	100

*(Excluding depreciation and fixed charges)

SURFACE

STATISTIC (1969)	BOSTON	PHILADEL.	NEW YORK	CLEVELAND	CHICAGO
Veh. Mi./Veh. Hour	9.60	11.04	7.5	11.4	8.43
Index	100	115	78.2	119	88
Veh. Mi./Transp. Employee	14,583	16,416	12,758	19,513	17,847
Index	100	113	87.5	134	122
Transp. Cost/Veh. Mile	91.69¢	58.60¢	91.16¢	47.56¢	62.4¢
Index	100	64	99.4	52	68
Maintenance Cost/Veh. Mile	16.59¢	19.65¢	32.28¢	9.95¢	18.6¢
Index	100	118	195	60	112
Other Oper. Cost/Veh. Mile	46.29¢	38.87¢	39.34¢	NA	NA
Index	100	84	85	NA	NA
Total Oper. Cost*/Veh. Mile	154.57¢	117.12¢	162.78¢	NA	NA
Index	100	76	105.3	NA	NA
Percent Veh. in Daily Service	75%	82%	90-95%	79.5%	85%
Index	100	109	120-126	106	113
Driver Wage/Hr. Without Fringe	$4.295	$3.81	$3.745-4.1525	$3.75	$4.33
Index	100	89	87-97	87	101
Driver Wage/Hr. With Fringe	$5.5835	$5.17	$4.48-4.97	$5.81	$5.48
Index	100	92.5	80-89	104	98
Annual Wages/Transp. Emp.	$9,665	$8,740	$10,142	NA	$10,215
Index	100	90	105	NA	106
Veh. Mi./Transp. Employee Dollar of Compensation	1.51	1.88	1.28	NA	1.75
Index	100	124	85	NA	116

* (Excluding depreciation and fixed charges)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